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HARRITY & SNYDER, LLP
11240 WAPLES MILL ROAD
SUITE 300
FAIRFAX, VA 22030

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CLEARY, THOMAS J	

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/751,449
Filing Date: January 02, 2001
Appellant(s): HEITKAMP ET AL.

Brian E. Ledell
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 13 August 2004.

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) Status of Claims

The statement of the status of the claims contained in the brief is incorrect. A correct statement of the status of the claims is as follows:

Claims 1-6 and 9-17 stand rejected in the final rejection mailed 26 March 2004. The Examiner has withdrawn the rejection of Claims 7-8 and 18-25 in view of Appellant's persuasive arguments.

Claims 7-8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 18-25 are allowed.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Invention

The summary of invention contained in the brief is correct.

(6) Issues

The appellant's statement of the issues in the brief is correct.

(7) Grouping of Claims

The appellant's statement in the brief that certain claims do not stand or fall together is not agreed with because Claims 7-8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, and Claims 18-25 are allowed. The appropriate grouping of the claims is as follows: Claims 1 and 2 stand or fall together; Claims 3 and 6 stand or fall together as a separate group; Claims 4 and 5 stand or fall together as a separate group; Claims 9, 10, and 13 stand or fall together as a separate group; Claims 11 and 12 stand or fall together as a separate

group; Claims 14-17 stand or fall together as a separate group; Claims 18-25 are allowed and Claims 7-8 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

(8) Claims Appealed

The copy of the appealed claims contained in the Appendix to the brief is substantially correct. Claims 7-8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, and Claims 18-25 are allowed.

(9) Prior Art of Record

6,526,464	Jobs et al.	2-2003
6,381,239	Atkinson et al.	4-2003
5,957,985	Wong et al.	9-1999
6,301,623	Simpson et al.	10-2001
6,532,500	Li et al.	3-2003
6,122,756	Baxter et al.	9-2000
6,330,614	Aggarwal et al.	12-2001

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent Number 6,526,464 to Jobs et al. ("Jobs"), US Patent Number 6,381,239 to Atkinson et al. ("Atkinson"), and US Patent Number 5,957,985 to Wong et al. ("Wong").

In reference to Claim 1, Jobs teaches a master control processor (See Figure 2 Number 240); a bus controller (See Figure 2 Number 202) connected to the processor that implements a serial bus interface between the processor and a plurality of serial bus devices (See Figure 2 Numbers 220-226); a switch configured to electrically connect the portion of the bus corresponding to the switch to the primary portion of the bus through the serial bus interface when the switch is controlled to be in a first state and to electrically isolate the portion of the bus corresponding to the switch from the serial bus interface on the primary portion of the bus when the switch is controlled to be in a second state (See Figure 2 Numbers 206 and 208 and Column 2 Lines 25-43); and wherein each switch is controlled to be in a first state when each of the other plurality of switches are in a second state (See Column 2 Lines 37-39). Jobs does not teach the midplane and plurality of circuit boards as claimed. Atkinson teaches a computer device containing a midplane (See Figure 1 Number 1 and Column 9 Lines 12-15) which has a plurality of cards connected to it (See Figure 1 Numbers 2-6, and Column 9

Lines 12-15); a serial message bus connecting the cards across the midplane (See Figure 1 Number 9); wherein each of the cards contains one or more devices (See Figure 1 Numbers 11-16, 30-33, 41-45, 59, and 61-64); and a processor and bus interface on a first circuit board (See Figure 1 Numbers 3, 31, 33, and 36).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the device of Jobs with the plurality of cards containing a processor and bus interface connected through a midplane containing a serial bus of Atkinson in order to construct the serial bus of Jobs with an open architecture that readily accommodates insertion of newly designed hardware and/or software (See Column 6 Lines 6-10 of Atkinson).

Jobs does not teach local control logic as claimed for controlling the switches. Wong teaches components, which are equivalent to the switches, that have a driver, which is equivalent to the local control logic, for controlling the component locally, said components connected to a bus which is further connected to a master control unit, which is equivalent to the master control processor (See Figures 1, 3, and 6, Column 3 Lines 58-67, and Column 4 Lines 1-7).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the device of Jobs with the local control logic of Wong to provide a level of redundancy by allowing the local control logic to control the switches at a local level and allowing a master control unit to control the switch if the local control logic fails (See Column 4 Lines 27-29 and Column 5 Lines 16-26 of Wong).

In reference to Claim 2, Jobs, Atkinson, and Wong teach the limitations as applied to Claim 1 above. Jobs further teaches basic input-output routines in NVRAM, which are equivalent to the master control logic, connected to the master control processor to control the gates (See Figure 2 Number 228 and Column 2 Lines 46-63). Wong further teaches that the driver, which is equivalent to the local control logic, communicates with the master circuitry (See Column 6 Lines 15-47).

The features of Jobs and Wong relied upon in the rejection of Claim 2 would have been obvious to include to one of ordinary skill in the art when making the combination of Jobs, Atkinson, and Wong. Therefore, the motivation for combining Jobs, Atkinson, and Wong is the same as provided in the parent claim above.

Claims 3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jobs, Atkinson, and Wong as applied to Claim 2 above, and further in view of US Patent Number 6,301,623 to Simpson et al ("Simpson").

In reference to Claim 3, Jobs, Atkinson, and Wong teach the limitations as applied to Claim 2 above. Jobs, Atkinson, and Wong do not teach the multiplexer for dividing the serial bus interface into a plurality of sub-buses as claimed. Simpson teaches the use of a multiplexer (See Figure 4 Number 25) to divide a serial channel (See Figure 4 Number 17), which is a serial bus, into a plurality of sub-buses (device groups) (See Figure 4 Number 14), only one of which is accessible and connected to

the controller at a time (See Abstract, Figure 4, Column 1, Lines 66-67, and Column 2, Lines 1-15 of Simpson).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the device of Jobs, Atkinson, and Wong with the device of Simpson in order to allow virtually limitless expansion of the address space (See Column 2, Lines 58-63 of Simpson).

In reference to Claim 6, Jobs, Atkinson, Wong, and Simpson teach the limitations as applied to Claim 3 above. Simpson further teaches that a plurality of I2C devices (See Figure 4 Number 16), which are circuit boards, can be connected to each sub-bus (See Figure 4 Number 17) through the communication module (See Figure 4 Number 14 and Column 4 Lines 1-23).

The features of Simpson relied upon in the rejection of Claim 6 would have been obvious to include to one of ordinary skill in the art when making the combination of Jobs, Atkinson, Wong, and Simpson. Therefore, the motivation for combining Jobs, Atkinson, Wong, and Simpson is the same as provided in the parent claim above.

Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jobs, Atkinson, Wong, and Simpson as applied to Claim 3 above, and further in view of US Patent Number 6,532,500 to Li et al. ("Li") and US Patent Number 6,122,756 to Baxter et al. ("Baxter").

In reference to Claim 4, Jobs, Atkinson, Wong, and Simpson teach the limitations as applied to Claim 3 above. Jobs, Atkinson, Wong, and Simpson do not teach the serial bus devices including at least one of a temperature sensor, a voltage monitor, and an ID EPROM as claimed. Li teaches a temperature sensor (serial thermal sensor) and a serial voltage sensor (See Column 4 Lines 23-49).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the device of Jobs, Atkinson, Wong, and Simpson with the temperature and voltage sensors of Li in order to provide signals representing the operating parameters of various devices in the computer system such as temperature and voltage (See Column 4 Lines 23-26 and Column 4 Lines 30-33 of Li).

Jobs, Atkinson, Wong, and Simpson do not teach the serial bus devices including at least one of a temperature sensor, a voltage monitor, and an ID EPROM as claimed. Baxter teaches an ID EPROM device (See Figure 2 Number 204).

It further would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the device of Jobs, Atkinson, Wong, and Simpson with the ID EPROM of Baxter to provide a non-volatile way to store important system information (See Column 11 Lines 42-44 of Baxter).

In reference to Claim 5, Jobs, Atkinson, Wong, and Simpson teach the limitations as applied to Claim 3 above. Jobs, Atkinson, Wong, and Simpson do not teach one of the serial bus devices including an ID EPROM connected to the midplane as claimed.

Li teaches a temperature sensor (serial thermal sensor) and a serial voltage sensor (See Column 4 Lines 23-49).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the device of Jobs, Atkinson, Wong, and Simpson with the temperature and voltage sensors of Li in order to provide signals representing the operating parameters of various devices in the computer system such as temperature and voltage (See Column 4 Lines 23-26 and Column 4 Lines 30-33 of Li).

Baxter teaches a system ID SEEPROM (Serial EEPROM) device, located on the midplane (backpanel) (See Column 10 Lines 27-29).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the device of Jobs, Atkinson, Wong, and Simpson with the ID EPROM of Baxter to provide a non-volatile way to store important system information (See Column 11 Lines 42-44 of Baxter).

Claims 9, 10, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jobs, Atkinson, and US Patent Number 6,330,614 to Aggarwal et al. ("Aggarwal").

In reference to Claim 9, Jobs teaches a device, which is equivalent to a packet forwarding engine, comprising a first circuit board having a master control processor (See Figure 2 Number 240); and a plurality of switches (See Figure 2 Numbers 206-208) configured to electrically connect a serial bus to the first circuit board when the switch is controlled to be in a first state and to electrically isolate the serial bus from the

first circuit board when the switch is controlled to be in a second state, wherein the switch of a particular serial bus being in the first state only when the switches for each of the other serial busses are in the second state (See Figure 2 Numbers 206 and 208 and Column 2 Lines 26-39); and wherein each switch is controlled to be in a first state when each of the other plurality of switches are in a second state (See Column 2 Lines 37-39). Jobs does not teach a routing engine as claimed. Aggarwal teaches a routing engine (See Figures 3 and 4, Column 4, Lines 34-38, and Column 5, Lines 49-66 of Aggarwal) for consolidating routing information learned from routing protocols in the network (See Column 5 Lines 52-61).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the device of Jobs with the routing engine of Aggarwal in order to create a forwarding table allowing the device to determine the proper output port based on the destination address of incoming packets (See Column 6 Lines 4-48 of Aggarwal).

Jobs does not teach a midplane as claimed and a plurality of second circuit boards as claimed. Atkinson teaches a computer device containing a midplane (See Figure 1 Number 1 and Column 9 Lines 12-15) which has a plurality of cards connected to it (See Figure 1 Numbers 2-6, and Column 9 Lines 12-15); a serial message bus connecting the cards across the midplane (See Figure 1 Number 9); wherein each of the cards contains one or more devices (See Figure 1 Numbers 11-16, 30-33, 41-45, 59, and 61-64); and a processor and bus interface on a first circuit board (See Figure 1 Numbers 3, 31, 33, and 36).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the device of Jobs with the plurality of cards containing a processor and bus interface connected through a midplane containing a serial bus of Atkinson in order to construct the serial bus of Jobs with an open architecture that readily accommodates insertion of newly designed hardware and/or software (See Column 6 Lines 6-10 of Atkinson); to control board specific processing (See Column 17 Lines 43-45 of Atkinson); to facilitate communications between cards (See Column 17 Lines 50-52 of Atkinson); and to provide each card with the necessary processing resources (See Column 17 Lines 32-35 of Atkinson).

In reference to Claim 10, Jobs, Atkinson, and Aggarwal teach the limitations as applied to Claim 9 above. Aggarwal further teaches that the network device is a network router (See Figures 3 and 4, Column 2 Lines 26-42, and Column 5, Lines 49-66).

The features of Aggarwal relied upon in the rejection of Claim 10 would have been obvious to include to one of ordinary skill in the art when making the combination of Jobs, Atkinson, and Aggarwal. Therefore, the motivation for combining Jobs, Atkinson, and Aggarwal is the same as provided in the parent claim above.

In reference to Claim 13, Jobs, Atkinson, and Aggarwal teach the limitations as applied to Claim 9 above. Jobs further teaches a bus controller connected to the

processor that implements a serial bus interface between the processor and a plurality of serial bus devices (See Figure 2 Number 202).

The features of Aggarwal relied upon in the rejection of Claim 13 would have been obvious to include to one of ordinary skill in the art when making the combination of Jobs, Atkinson, and Aggarwal. Therefore, the motivation for combining Jobs, Atkinson, and Aggarwal is the same as provided in the parent claim above.

Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jobs, Atkinson, and Aggarwal as applied to Claim 9 above, and further in view of Wong.

In reference to Claim 11, Jobs, Atkinson, and Aggarwal teach the limitations as in Claim 9 above. Jobs, Atkinson, and Aggarwal do not teach local control logic as claimed for controlling the switches. Wong teaches components, which are equivalent to the switches, that have a driver, which is equivalent to the local control logic, for controlling the component locally, said components connected to a bus which is further connected to a master control unit, which is equivalent to the master control processor (See Figures 1, 3, and 6, Column 3 Lines 58-67, and Column 4 Lines 1-7).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the device of Jobs, Atkinson, and Aggarwal with the local control logic of Wong in order to provide a level of redundancy by allowing the local control logic to control the switches and using the master control unit to control the

switch if the local control logic fails (See Column 4 Lines 27-29 and Column 5 Lines 16-26 of Wong).

In reference to Claim 12, Jobs, Atkinson, Aggarwal, and Wong teach the limitations as applied to Claim 11 above. Jobs further teaches basic input-output routines in NVRAM, which are equivalent to the master control logic, connected to the master control processor to control the gates (See Figure 2 Number 228 and Column 2 Lines 46-63). Wong further teaches that the driver, which is equivalent to the local control logic, communicates with the master circuitry (See Column 6 Lines 15-47).

The features of Jobs and Wong relied upon in the rejection of Claim 12 would have been obvious to include to one of ordinary skill in the art when making the combination of Jobs, Atkinson, Aggarwal, and Wong. Therefore, the motivation for combining Jobs, Atkinson, Aggarwal, and Wong is the same as provided in the parent claim above.

Claims 14 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jobs, Atkinson, and Aggarwal as applied to Claim 13 above, and further in view of Simpson.

In reference to Claim 14, Jobs, Atkinson, and Aggarwal teach the limitations as applied Claim 13 above. Jobs, Atkinson, and Aggarwal do not teach the multiplexer for dividing the serial bus interface into a plurality of sub-buses as claimed. Simpson teaches the use of a multiplexer (See Figure 4 Number 25) to divide a serial channel

(See Figure 4 Number 17), which is a serial bus, into a plurality of sub-buses (device groups) (See Figure 4 Number 14), only one of which is accessible and connected to the controller at a time (See Abstract, Figure 4, Column 1, Lines 66-67, and Column 2, Lines 1-15 of Simpson).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the device of Jobs, Atkinson, and Aggarwal with the device of Simpson in order to allow virtually limitless expansion of the address space (See Column 2, Lines 58-63 of Simpson).

In reference to Claim 17, Jobs, Atkinson, Aggarwal, and Simpson teach the limits as applied to Claim 14 above. Atkinson further teaches a serial bus that is connected to a plurality of circuit boards (See Figure 1 Number 9). Simpson further teaches that a plurality of I2C devices (See Figure 4 Number 16), which are equivalent to the circuit boards, can be connected to each sub-bus (See Figure 4 Number 17) through the communication module (See Figure 4 Number 14 and Column 4 Lines 1-23).

The features of Simpson relied upon in the rejection of Claim 17 would have been obvious to include to one of ordinary skill in the art when making the combination of Jobs, Atkinson, Aggarwal, and Simpson. Therefore, the motivation for combining Jobs, Atkinson, Aggarwal, and Simpson is the same as provided in the parent claim above.

Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jobs, Atkinson, Aggarwal, and Simpson as applied to Claim 14 above, and further in view of Li and Baxter.

In reference to Claim 15, Jobs, Atkinson, Aggarwal, and Simpson teach the limitations as applied to Claim 14 above. Jobs, Atkinson, Aggarwal, and Simpson do not teach the serial bus devices including at least one of a temperature sensor, a voltage monitor, and an ID EPROM as claimed. Li teaches a temperature sensor (serial thermal sensor) and a serial voltage sensor (See Column 4 Lines 23-49).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the device of Jobs, Atkinson, Aggarwal, and Simpson with the temperature and voltage sensors of Li in order to provide signals representing the operating parameters of various devices in the computer system such as temperature and voltage (See Column 4 Lines 23-26 and Column 4 Lines 30-33 of Li).

Jobs, Atkinson, Aggarwal, and Simpson do not teach the serial bus devices including at least one of a temperature sensor, a voltage monitor, and an ID EPROM as claimed. Baxter teaches an ID EPROM device (See Figure 2 Number 204).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the device of Jobs, Atkinson, Aggarwal, and Simpson with the ID EPROM of Baxter to provide a non-volatile way to store important system information (See Column 11 Lines 42-44 of Baxter).

In reference to Claim 16, Jobs, Atkinson, Aggarwal, and Simpson teach the limitations as in Claim 14 above. Jobs, Atkinson, Aggarwal, and Simpson do not teach one of the serial bus devices including an ID EPROM connected to the midplane as claimed. Li teaches a temperature sensor (serial thermal sensor) and a serial voltage sensor (See Column 4 Lines 23-49).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the device of Jobs, Atkinson, Aggarwal, and Simpson with the temperature and voltage sensors of Li in order to provide signals representing the operating parameters of various devices in the computer system such as temperature and voltage (See Column 4 Lines 23-26 and Column 4 Lines 30-33 of Li).

Baxter teaches a system ID SEEPROM (Serial EEPROM) device, located on the midplane (backpanel) (See Column 10 Lines 27-29).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the device of Jobs, Atkinson, Wong, and Simpson with the ID EPROM of Baxter to provide a non-volatile way to store important system information (See Column 11 Lines 42-44 of Baxter).

(11) Response to Argument

Appellant's arguments with respect to the rejection of Claims 1 and 2 over Jobs, Atkinson, and Wong have been fully considered but they are not persuasive.

Appellant has argued that Atkinson does not disclose that each circuit board includes the switch recited in Claim 1. The Examiner notes that, as indicated in the rejection, Atkinson is being relied upon to teach a plurality of circuit boards each containing a serial sub bus connected together through a midplane, and Jobs is being relied upon to teach a master control processor, and a switching device to provide access to a serial sub-bus, wherein said serial sub-bus contains a plurality of serial bus devices.

Appellant has argued that Atkinson's method of sharing a bus is different from the method claimed for sharing a bus. The Examiner notes that Atkinson is not being relied upon to teach a method for sharing a bus. As stated above, Atkinson is being relied upon to teach a plurality of circuit boards each containing a serial sub bus connected together through a midplane. The Examiner further notes that the scope of the claim neither requires nor prohibits the method used by Atkinson for sharing a bus. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Appellant has argued that Wong does not disclose the switch and the local control logic recited in Claim 1. The Examiner notes that, as indicated in the rejection,

Wong teaches a plurality of components, such as the switches of Claim 1, that have a driver, which is equivalent to the local control logic, for controlling the component locally, said components connected to a bus which is further connected to a master control unit, which is equivalent to the master control processor (See Figures 1, 3, and 6, Column 3 Line 58 – Column 4 Line 7). Wong is being relied upon to teach not a switching device, but a control method of a switching device; Jobs is being relied upon to teach a switching device. The Examiner further notes that the scope of the claim neither requires nor prohibits the use of switching logic as described in Wong. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). The Examiner further notes that the secondary control unit of Wong has not been relied upon in this rejection.

In response to Appellant's argument that there is no suggestion to combine the references, the Examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, as shown in the rejection, Atkinson provides a means to expand the serial bus of Jobs by using an open architecture that readily accommodates insertion of newly designed hardware and/or software (See Column 6 Lines 6-10 of Atkinson); and Wong provides a level of

redundancy by allowing the local control logic to control the switches at a local level and allowing a master control unit to control the switch if the local control logic fails (See Column 4 Lines 27-29 and Column 5 Lines 16-26 of Wong). Jobs teaches that the illustrative system may include fewer or more serial sub-busses (See Figure 2 and Column 4 Lines 19-23), bus is silent as to how to how this can be done. One of ordinary skill in the art would look to Atkinson, who teaches methods for expanding a system in a fault-tolerant manner (See Column 6 Lines 1-22). One of ordinary skill in the art would further look to Wong, who teaches methods for facilitating resource and information sharing while increasing the fault tolerance of systems with a plurality of devices (See Column 4 Lines 25-31).

In response to Appellant's argument that the motivation for combining Jobs, Atkinson, and Wong are merely features/advantages of the systems described by Atkinson and Wong, the Examiner notes that the motivation provided in the rejection shows a benefit to using a midplane with a plurality of circuit boards connected to it, as disclosed by Atkinson, and a benefit to using a local controller to control a device, as disclosed by Wong.

In response to Appellant's argument that Atkinson is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Jobs teaches a system for expanding the number of devices on a serial bus (see

Column 1 Lines 48-50, Column 2 Lines 43-45, and Column 4 Lines 19-23) and Atkinson teaches a method for expanding a system in a fault tolerant manner (See Column 6 Lines 1-23).

In response to Appellant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Appellant's arguments with respect to the rejection of Claims 3 and 6 over Jobs, Atkinson, Wong, and Simpson have been fully considered but they are not persuasive.

In response to Appellant's argument that there is no suggestion to combine the references, the Examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, as shown in the rejection, Simpson teaches that using a multiplexer to expand the address space of a serial bus allows virtually limitless expansion of the address space (See Column 2, Lines 58-63 of Simpson).

In response to Appellant's argument that the motivation for combining Jobs, Atkinson, Wong, and Simpson are merely features of the system described by Simpson, the Examiner notes that the motivation provided in the rejection shows a benefit to using a multiplexer to expand the address space of a serial bus. In response to Appellant's argument that because Jobs discloses sub-buses that may support a maximum number of addressable devices, one of ordinary skill in the art would not be motivated to incorporate features of Simpson, the Examiner notes that while Jobs does provide for an expanded address space, it is silent as to how to expand the address space (See Column 4 Lines 19-23), whereas Simpson provides for virtually limitless expansion of the address space (See Column 2, Lines 58-63). Further, by using the multiplexer of Simpson, only one loading device is provided to the bus, as opposed to the gates of Jobs, in which each gate provides a load to the bus.

Appellant's arguments with respect to the rejection of Claims 4 and 5 over Jobs, Atkinson, Wong, Simpson, Li, and Baxter have been fully considered but they are not persuasive.

In response to Appellant's argument that there is no suggestion to combine the references, the Examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re*

Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, as shown in the rejection, Li teaches that the system provides signals representing the operating parameters of various devices in the computer system such as temperature and voltage (See Column 4 Lines 23-26 and Column 4 Lines 30-33 of Li); and Baxter teaches that the system provides a non-volatile way to store important system information (See Column 11 Lines 42-44 of Baxter).

In response to Appellant's argument that the motivation for combining Jobs, Atkinson, Wong, Simpson, Li, and Baxter are merely features of the systems described by Li and Baxter, the Examiner notes that the motivation provided in the rejection shows a benefit to using temperature and voltage sensors, in that operating parameters indicating the status of the system can be reported, and a benefit to using an ID EPROM, in that important system information is stored in a non-volatile manner and thus is more fault tolerant.

Appellant's arguments, with respect to Claims 7 and 8 have been fully considered and are persuasive. The rejection of Claims 7 and 8 has been withdrawn. Claims 7 and 8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Appellant's arguments with respect to the rejection of Claims 9, 10, and 13 over Jobs, Atkinson, and Aggarwal have been fully considered but they are not persuasive.

In response to Appellant's argument that the switches in Jobs are not included on a plurality of circuit boards and are not connected as recited in Claim 9, the Examiner notes that Jobs is being relied upon to teach switches that are connected as in Claim 9 (See Figure 2 Numbers 206 and 208 and Column 2 Lines 26-39) and Atkinson is being relied upon to teach a plurality of circuit boards (See Figure 1 Numbers 2-6) which may include the switches of Jobs.

In response to Appellant's argument that the Examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). It is further noted that Jobs, Atkinson, Aggarwal are all addressed to the problem of system expansion. Thus it would have been obvious to combine these references.

In response to Appellant's argument that there is no suggestion to combine the references, the Examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, as shown in the

rejection, Atkinson provides a means to expand the serial bus of Jobs by using an open architecture that readily accommodates insertion of newly designed hardware and/or software (See Column 6 Lines 6-10 of Atkinson) and Aggarwal allows the creation of a forwarding table allowing the device to determine the proper output port based on the destination address of incoming packets (See Column 6 Lines 4-48 of Aggarwal). Aggarwal teaches a network device, bus is silent as to its structure (See Column 1 Lines 26-49). Jobs teaches that a system may include fewer or more serial sub-busses (See Figure 2 and Column 4 Lines 19-23), but is silent as to how to how this can be done. One of ordinary skill in the art would look to Jobs, who teaches the structure of a system connected to a plurality of devices, and Atkinson, who teaches methods for expanding a system in a fault-tolerant manner (See Column 6 Lines 1-22).

Appellant's arguments with respect to the rejection of Claims 11 and 12 over Jobs, Atkinson, Aggarwal, and Wong have been fully considered but they are not persuasive.

The Examiner notes that, as indicated in the rejection, Wong teaches a plurality of components, such as the switches of Claim 1, that have a driver, which is equivalent to the local control logic, for controlling the component locally, said components connected to a bus which is further connected to a master control unit, which is equivalent to the master control processor (See Figures 1, 3, and 6, Column 3 Line 58 – Column 4 Line 7). The Examiner further notes that the secondary control unit of Wong has not been relied upon in this rejection.

In response to Appellant's argument that there is no suggestion to combine the references, the Examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, as shown in the rejection, Wong provides a level of redundancy by allowing the local control logic to control the switches at a local level and allowing a master control unit to control the switch if the local control logic fails (See Column 4 Lines 27-29 and Column 5 Lines 16-26 of Wong). When constructing the device of Jobs, one of ordinary skill in the art would further look to Wong, who teaches methods for facilitating resource and information sharing while increasing the fault tolerance of systems with a plurality of devices (See Column 4 Lines 25-31). In response to Appellant's argument that the motivation for combining Jobs, Atkinson, Aggarwal, and Wong are merely features/advantages of the system described by Wong, the Examiner notes that the motivation provided in the rejection shows a benefit to using a local controller to control a device, as disclosed by Wong.

Appellant's arguments with respect to the rejection of Claims 14 and 17 over Jobs, Atkinson, Aggarwal, and Simpson have been fully considered but they are not persuasive. In response to Appellant's argument that there is no suggestion to combine

the references, the Examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, as shown in the rejection, Simpson teaches that using a multiplexer to expand the address space of a serial bus allows virtually limitless expansion of the address space (See Column 2, Lines 58-63 of Simpson).

In response to Appellant's argument that the motivation for combining Jobs, Atkinson, Wong, and Simpson are merely features of the system described by Simpson, the Examiner notes that the motivation provided in the rejection shows a benefit to using a multiplexer to expand the address space of a serial bus.

In response to Appellant's argument that because Jobs discloses sub-buses that may support a maximum number of addressable devices, one of ordinary skill in the art would not be motivated to incorporate features of Simpson, the Examiner notes that while Jobs does provide for an expanded address space, it is silent as to how to expand the address space (See Column 4 Lines 19-23), whereas Simpson provides for virtually limitless expansion of the address space (See Column 2, Lines 58-63). Further, by using the multiplexer of Simpson, only one loading device is provided to the bus, as opposed to the gates of Jobs, in which each gate provides a load to the bus.

Appellant's arguments with respect to the rejections of Claims 18-25 have been fully considered and are persuasive. The rejections of Claims 18-25 have been withdrawn. Claims 18-25 are allowed.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Thomas J. Cleary

MARK G. PINKHART
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

DONALD SPARKS
SUPERVISORY PATENT EXAMINER

TJC
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Conferees

PAUL R. MYERS
PRIMARY EXAMINER

HARRITY & SNYDER, LLP
11240 WAPLES MILL ROAD
SUITE 300
FAIRFAX, VA 22030